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ABSTRACT

Assessing the impact of participation in school-to-work systems on student performance allows practitioners to determine whether their system is providing young people with the skills required for academic and lifelong success. School-to-work assessment systems focus on three key areas: academic, broad workplace, and specific occupational skills. Development of effective student assessment mechanisms requires strong connections between the education and employment communities. Student assessment in a school-to-work system necessitates student credentials or certificates that are portable and recognized across industries, institutions, and regions. A variety of outcome measurements may be used to assess the impact of school-to-work participation on student performance. Multiple forms of assessment may be used to determine whether young people possess core academic competencies and the ability to translate those skills into practice. Assessment systems should also include ways to document/certify the academic and workplace competencies that young people have developed through participation in school-to-work system. Three examples of effective student assessment practices are as follows: Oregon's Proficiency-Based Admission Standards System; Project Riverbank in the Oakdale Joint Union High School District in Riverbank, California; and Omaha Work Keys in Omaha, Nebraska. (Contains 6 references and an annotated list of nine organizations to contact for further assistance regarding student assessment. (MN)

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★RESOURCE★ BULLETIN

FEBRUARY 1997

Student Assessment in School-to-Work Systems

Assessing the impact of participation in a school-to-work system on student performance provides practitioners the opportunity to examine whether or not their system is providing young people with the skills required for academic and lifelong success. As a result, school-to-work practitioners, teachers, and learning and assessment researchers have worked to develop new methods of "authentic" assessment that measure not only a student's competency in academic skill areas, but also his or her ability to apply these skills to real-world situations and problems. Authentic assessments allow young people to show that they possess a strong understanding of their chosen occupational areas and that they are able to connect this understanding to broader academic and workplace concepts. Educators and employers are able to use student assessment measurements as indicators of student and system performance.

School-to-work assessment systems focus on three key areas: academic skills, broad workplace skills, and specific occupational skills. Developing competencies in core academic subjects such as math, English, science, and social studies not only provides young people with the academic background needed to succeed in postsecondary education, but also is critical to creating a base of knowledge that can be built upon or connected to other areas. Broad workplace skills that apply to a wide range of occupations are also important to young people. The Secretary's Commission on Achieving Necessary Skills (SCANS) identified two types of skills--competencies and foundations--that are necessary for success in the workplace. Competencies are organized into five categories: skills with resources, information, interpersonal, systems, and technology. Foundations are skills and qualities that underlie the competencies, including basic skills (such as reading, writing, mathematics, and others), thinking skills (such as reasoning, decision-making, and problem-solving), and personal qualities (such as responsibility, integrity, and self-management). The third area, assessment of more specific occupational skills, provides employers with information on the skills and abilities a young person could bring to a particular job.

Assessment of student performance in these three areas helps practitioners as they work to refine and improve school-to-work systems. Student assessment can be used as a diagnostic tool that highlights academic and occupational competency areas in which student performance is strongest and, as a result, draws attention to areas in which students still need to acquire skills and knowledge. This bulletin presents key issues for practitioners to consider when developing student assessment systems, followed by a listing of resources that provide additional information and assistance in this area.

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Key Issues

Involvement of All Partners in Assessment System Design. The development of effective student assessment mechanisms requires strong connections between the education and employment communities. The participation of educators and school administrators ensures that assessment accurately reflects the academic content of various school- and work-based learning opportunities. Business and community involvement helps to make assessment mechanisms valid and authentic indicators of a student's ability to succeed in a job. The closer the connection between schools and business/community partners, the more effective the integration of work-related skills into the academic curriculum. These connections can also help students and business partners recognize the importance of academic skills in the workplace. The support of other partners, including teachers, parents, and students, is also important.

Portability. Student assessment in school-to-work systems necessitates student credentials or certificates that are portable and recognized across industries, institutions, and regions. A high school student who chooses to attend college or take a job elsewhere must be able to demonstrate with a recognized credential the skills he or she has attained. Under the School-to-Work Opportunities Act, "skill certificates" are portable, industry-recognized credentials awarded to participants who have demonstrated competency in a core set of standards.

Relevant Outcome Measurements. A variety of outcome measurements can be used to assess the impact of school-to-work participation on student performance. Outcome measurements should assess the degree to which participation has affected a student's academic performance, workplace skills, and specific occupational skills. Practitioners can continue to use traditional standardized tests and grade point average in core academic areas to monitor student performance in the classroom, while broader educational outcomes can include graduation rates and rates of program completion. However, it is important to move beyond these to more authentic measures that are directly related to participation in school-to-work. Practitioners need to work to incorporate more tangible labor market outcome measures. These measures can include a student's broad workplace competencies, such as problem-solving or critical thinking abilities, as well as the specific skills required by individual occupations. Other measures can include economic outcomes such as a young person's wages, success in finding a related job, and employer satisfaction with the students' work. Over time, practitioners should work with schools to refine or develop new outcome measures that assess, in a more authentic way, the performance of young people in all of these educational and economic areas.

Assessment Tools and Methods. Multiple forms of assessment can be used to determine whether a young person possesses core academic competencies and the ability to translate these skills into practice. Performance-based assessment, a commonly-used type of authentic assessment, allows students to demonstrate what they know and are able to do. They are often used to measure broader workplace competencies, such as problem-solving, critical thinking, and the ability to complete complex tasks.

Performance-based assessments can be made through individual or team projects, individual student portfolios, or various types of "on demand" measurements. On demand assessments are used to measure how much a young person knows about a subject or skill area at a given time. Projects allow teachers and workplace supervisors to observe over time how students interact at with others as they work to apply their skills to a real-world situation. Individual student portfolios allow students to compile information (such

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as personal credentials and prior work samples) that reflects cumulative development of skills, abilities, knowledge, and competencies.

Unlike traditional standardized tests that are often used to compare students with one another, performance-based assessments compare them to an absolute standard. The question is whether a student can meet or surpass a particular standard (e.g., composition of an appropriate and grammatically correct cover letter or compilation and analysis of complex statistical data), not whether he or she performed better than other students.

Performance-based assessment measures an individual's performance in both broad *and* specific areas. Instructors and evaluators want to measure the broad job skills of young people as well as their progress through a school-to work system. As a result, the tools used to assess student performance must be flexible enough to encompass a wide range of skills and knowledge, yet specific enough to provide potential employers and postsecondary institutions with detailed information about a student's achievements.

Because performance-based assessments are designed to show what a student knows and is able to do, they are particularly useful to potential employers. A letter or numerical grade in a graphic arts course provides a graphic arts company with relatively little information about a prospective employee. However, a portfolio of advertising posters and other work samples could be used to demonstrate the depth and breadth of a school-to-work students' abilities.

Methods of Certification. Assessment systems should also include ways to document, or certify, the academic and workplace competencies that young people have developed through participation in a school-to-work system. Skill certificates and other forms of certification can help young people communicate their abilities to employers by clearly describing and detailing their competencies across the spectrum of academic and occupational skills.

One example of the use of skill certificates involves the Certificate of Initial Mastery (CIM) and the Certificate of Advanced Mastery (CAM), both of which document a young person's competency levels in a variety of skills. Currently at the development and early implementation stage in a number of states, the CIM can be earned at approximately the end of tenth grade by students who have demonstrated competency in the core academic subjects (e.g., math, English, science, and social studies). In eleventh grade, students begin working toward a CAM, which is awarded in a more specialized occupational area of study. The CAM focuses less on broad academic skills and more on the skills that can be applied directly to a specific occupational cluster. When paired with a CIM, a CAM shows that a young person possesses both the broad competencies needed to effectively enter the workplace and the substantive skills required to meet the demands of a specific job.

Effective Practices

Oregon's Proficiency-based Admission Standards System (PASS) is an innovative reform that puts in place a new system of student assessments for college admission in Oregon. The proficiency-based system is being developed by the Oregon State System of Higher Education and shifts the focus of the admission process from courses taken to knowledge and skills mastered. Under the current system, students only show that they have taken the required courses and met the minimum grade point

average requirement. The new system ties admission directly to a student's demonstrated proficiency in math, science, social sciences, second languages, literature, and the arts, and requires students to demonstrate that their knowledge and skills meet or exceed the standards required for college admission.

Prospective students will be expected to demonstrate proficiency in six content areas and nine process areas. Proficiency will be determined by three types of assessments: state multiple-choice test, common performance assessments, and teacher verification of student work. The state multiple-choice tests will test students on content knowledge and will be the same tests students will take to earn Certificates of Initial or Advanced Mastery. The common performance assessments are tasks that serve to evaluate cognitively complex proficiencies, created by trained Oregon educators, university faculty, and evaluators, or adapted from other organizations that have created and field-tested such tasks. Common performance assessments will be scored by teachers trained to identify criteria that are common statewide. The third type of assessment, teacher verification of student work samples, will require teachers to certify student performance on those proficiencies best judged in the classroom. Teachers will be provided scoring standards (for example, on a 1-5 scale) along with examples of acceptable student work for each proficiency they score.

This new system is meant to work in conjunction with Oregon's education reforms, which allow students to earn a Certificate of Initial Mastery (CIM) in tenth grade and a Certificate of Advanced Mastery (CAM) in twelfth grade. The CIM is awarded to students who meet the specified rigorous academic knowledge and skills; and the CAM is earned by students who participate in an endorsement area and achieve the specified academic benchmarks and career-related learning standards.

Project Riverbank--a school-to-work partnership between Riverbank High School, the Stanislaus County (CA) Office of Education, Oakdale Joint Union High School District, Stanislaus Partners in Education, and over 50 businesses--is currently working on the development of a comprehensive assessment system to measure the academic and occupational competencies of its students. Project Riverbank has worked with WestEd in implementing the Career-Technical Assessment Program (C-TAP), which is designed to measure student performance, achievement, skill levels, and competency in a wide range of areas. Currently, 90 sophomores are participating in Project Riverbank, but administrators are planning for 270 sophomores, juniors, and seniors by the fall of 1997.

The C-TAP model provides for the assessment of student performance through three vehicles: an individual student portfolio, a long-term project, and a written scenario. The portfolio is a collection of student work completed both in school and on the worksite during participation in Project Riverbank. A portfolio typically includes an introductory letter, resume, work samples, writing samples, and an evaluation of the student completed by a workplace supervisor. The long-term project demonstrates competency in planning and organizing as well as in a skill area by requiring students to target a specific area of interest, plan a course of action for meeting a goal, compile evidence that demonstrates how their work is progressing, document the final product, and deliver an oral presentation on the project and its lessons. The written scenario allows students to demonstrate their writing and communication abilities by presenting a real-world problem that they must resolve in essay format.

Project Riverbank's integrated curriculum focuses on the skills and competencies that will be measured by these assessment mechanisms. The curriculum combines math, science, and English with a career major in health, business, or production technology, and encompasses both broad and specific

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workplace competencies as well as basic academic skills. In addition, the education and labor communities have both been actively involved in curriculum design and student assessment. This has helped to ensure that each of these partners clearly understands the role of the other, and that the development of skills and competencies is coordinated between work and the classroom.

Omaha Work Keys is a collaborative project that applies the American College Testing (ACT) Work Keys system to determine workplace skills required in the regional business community. Omaha Work Keys uses a comprehensive student assessment system as part of its strategy to have all young people graduate high school with the skills required to succeed at work. By identifying the most prevalent job clusters in the Omaha metropolitan area, the system helps ensure that young people are being prepared to enter strong and growing occupations, and also allows educators to work more closely with the labor community and other partners in developing the school-to-work system. Originally implemented in two high schools in 1994, Omaha Work Keys has expanded to five additional high schools and has served more than 5,000 students. Plans for the 1996-1997 school year call for all high schools and alternative centers in Omaha public schools to implement Work Keys.

To assess the occupational competency of its participants, Omaha Work Keys focuses on broad academic and work-readiness skills as well as specific occupational skills. Broad skills encompass the basic reading, writing, mathematics, and listening skills that are required on all jobs, as well as technological skills, communication skills, the ability to work in teams, observational abilities, and the ability to locate information from multiple sources. Testing uses audio and visual tapes as well as more traditional paper and pencil formats.

At the same time the students are being assessed, Omaha Work Keys volunteers are assessing available jobs in the Omaha area to determine the levels of skills needed to be successful in those positions. These Work Keys levels are shared with employers who may use the data for training and hiring. They are also communicated to the school district, which uses the information to adapt curriculum to better meet the requirements of the labor market. Volunteers have assessed 50 occupations in Omaha in jobs as diverse as bank teller, paralegal, senior electrician, child care assistant, and customer service representative. The outcomes of this business/education partnership will become apparent this spring as the first graduates apply for employment using their Work Keys results as part of their resumes.

FOR MORE INFORMATION ABOUT THIS TOPIC, CONSULT THE FOLLOWING RESOURCES:

Effective Practices

Oregon's Proficiency-based Admission Standards System: David Conley, Project Director and Associate Professor in the College of Education, University of Oregon, P.O. Box 3175, Eugene, OR 97403 ★ 541-346-5799 ★ david_conley@ccmail.uoregon.edu.

Project Riverbank: Project Director, Riverbank High School, 6400 Claus Road, Riverbank, CA 95367 ★ 209-869-1891.

Omaha Work Keys: Susan Ogborn, Manager, Education Initiatives, Greater Omaha Chamber of Commerce, 1301 Harney Street, Omaha, NE 68102 ★ 402-346-5000.

Organizations

American College Testing (ACT) is a nonprofit organization dedicated to educational measurement and research, primarily in support of individuals making education and career decisions. ACT conducts assessment, research, measurement, and evaluative programs in all types of educational endeavors and develops services or materials necessary to such endeavors. In addition, ACT develops techniques, equipment, and data to promote and advance the dissemination and interpretation of the information resulting from those programs. 2201 North Dodge Street, P.O. Box 168, Iowa City, IA 52243-0168 ★ 319-337-1000.

The California Institute on Human Services (CHIS) has addressed the inclusion of quality work-based learning experiences and the Secretary's Commission on Achieving Necessary Skills (SCANS) competencies into the academic curriculum. In addition, CHIS has worked to develop initial and advanced certificates of skill mastery and other methods of assessment, such as performance-based and portfolio assessments, that are linked directly to these integrated curricula. Sonoma State University, 1801 East Cotati Avenue, Rohnert Park, CA 94928 ★ 707-664-2416.

The Education Development Center (EDC) is a nonprofit research and development center that is currently working toward developing models to assess the technical, hands-on, and intellectual skills required in the workplace. EDC has also developed models and tools to translate industry skill standards into school-based and work-based curricula, student competencies, assessments, and teacher/mentor training programs. For example, EDC has worked with the American Chemical Society to create a number of tools and techniques that assess student performance against industry standards. In addition, EDC has worked with technical colleges to develop evaluation and student assessment models for both high school and postsecondary students. National School-to-Career Consortium, 55 Chapel Street, Newton, MA 02518-1060 ★ 617-969-7100 ★ http://www.edc.org.

Educational Testing Service (ETS) is a private educational measurement institution and a leader in educational research. ETS administers achievement, occupational, and admission tests for clients in education, government, and business. Rosedale Road, Princeton, NJ 08541 ★ 609-921-9000.

The ERIC Clearinghouse on Assessment and Evaluation (ERIC/AE) provides information and resources in the areas of student assessment and testing in education. ERIC/AE works on the methodology of measurement, research, and evaluation; the application of tests, measurement, or evaluation in educational projects or programs; tests and other measurement devices; and learning theory in general. In addition, ERIC/AE can provide additional information and resources to practitioners interested in student assessment and evaluation. Catholic University of America, Department of Education, O'Boyle Hall, Washington, DC 20064 ★ 800-464-3742 ★ askeric@ericir.syr.edu ★ http://www.cua.edu/www/eric_ae.

New Standards is developing a comprehensive set of performance standards in mathematics, English language arts, science, and applied learning at the elementary, middle, and high school levels. Currently, 14 states and six school districts are participating in New Standards. New Standards is governed by representatives of business, education, and community-based organizations, and can provide additional information and assistance on the development of standards and their impact on student performance and assessment. National Center on Education and the Economy, 700 11th Street, NW, Suite 750, Washington, DC 20001 ★ 202-783-3668 ★ nsinfo@ncee.org.

RPP International (RPP) has worked to bridge the gap between educational research, policy, and practice. RPP provides technical assistance to schools, community and government agencies, and private industries to enable them to implement effective system change practices that are based in research and grounded in standards. RPP also works in the areas of the integration of academic and vocational curriculum, student assessment, and skills standards. 2200 Powell Street, Suite 250, Emeryville, CA 94608 ★ 510-450-2550 ★ rppintl@aol.com.

The UCLA Center for the Study of Evaluation (CSE) was established in 1966 as the national center for research in educational evaluation. In 1990, CSE opened the **National Center for Research on Evaluation, Standards and Student Testing (CRESST)**, which works to create new methodologies for evaluating educational quality; create new designs to assess student learning; promote the sound design and use of assessment data; set the national research and assessment agenda; influence assessment and evaluation practices; and support the use of new information technologies. 10920 Wilshire Boulevard, Suite 900, Los Angeles, CA 90024-6511 ★ 310-206-1532 ★ http://www.cse.ucla.edu.

WestEd (formerly Far West and Southwest Regional Laboratories) works on a range of educational priorities that includes curriculum, assessment, school-to-work transition, teacher and administrator professional development, science and mathematics education, educational technology, early childhood, families, and communities. WestEd conducts research, technical assistance, and evaluation activities to promote the development of effective education and training systems. Much of WestEd's work has focused on developing methods and techniques to assess student performance. 730 Harrison Street, San Francisco, CA 94107-1242 ★ 415-565-3000 ★ http://www.fwl.org.

Publications

East San Gabriel Valley Regional Occupational Program. *Non-Traditional Assessment Strategies*. West Covina, CA: East San Gabriel Valley Regional Occupational Program, 1995.

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Wirt, John G. *Performance Assessment Systems: Implications for a National System of Skill Standards. Volume II -- Technical Report*. Washington, DC: National Governors' Association, 1995.

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